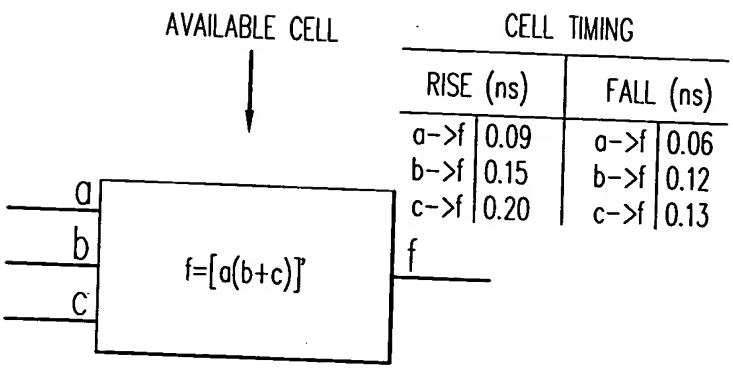
REPLACEMENT SHEET



CELL TIMING

RISE (ns)		FALL (ns)	
a->f	0.09	a->f	0.06
b->f	0.15	b->f	0.12
c->f	0.20	c->f	0.13

TARGETED FUNCTION

f=[xy+zy]

220

TIMING REQUIREMENT

RISE (ns)		FALL (ns)	
z->f	0.15	z->f	0.12

FIG. 2

205

210

FUNCTIONAL MATCHES

MATCH_1		MATCH_2	
a	y	a	y
b	x	b	z
c	z	c	x

TIMING REQUIREMENT

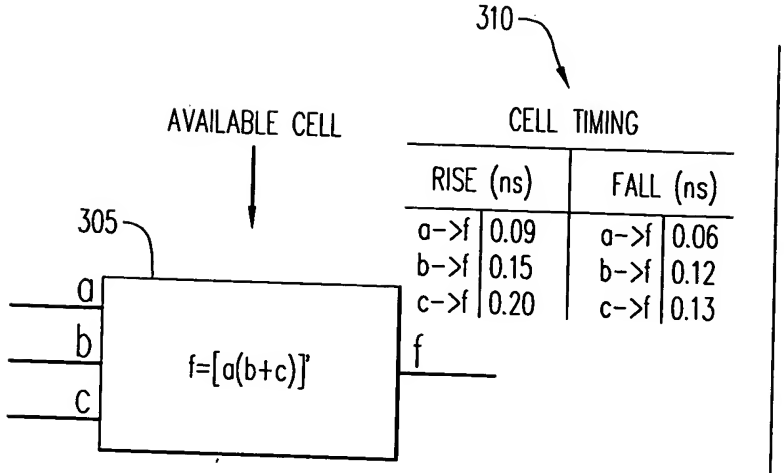
215

(FUNC + TIME) MATCH

MATCH	
a	y
b	z
c	x

FIG. 2a

REPLACEMENT SHEET



TARGETED FUNCTION

315 f=[xy+zy]'

320 TIMING REQUIREMENT

	RISE (ns)	VAR (ns)	FALL (ns)	VAR (ns)
x->f	0.20	<-α, 0.01>	0.12	<-0.01,0.03>
y->f	0.08	<-α, 0.02>	0.06	<-α, 0.01>
z->f	0.15	<-α, 0.01>	0.16	<-α, 0.01>

FIG. 3

325 330 FUNCTIONAL MATCHES

MATCH_1		MATCH_2	
a	y	a	y
b	x	b	z
c	z	c	x

335 TIMING REQUIREMENT

(FUNC + TIME) MATCH

MATCH	
a	y
b	z
c	x

FIG. 3a

REPLACEMENT SHEET

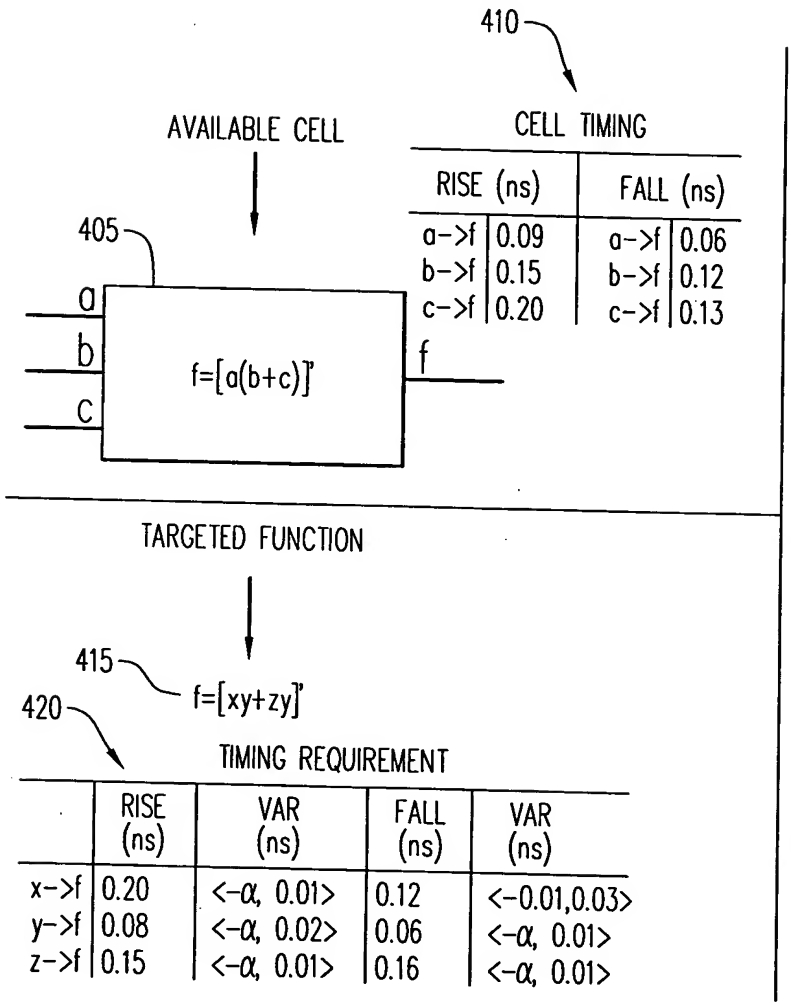


FIG. 4

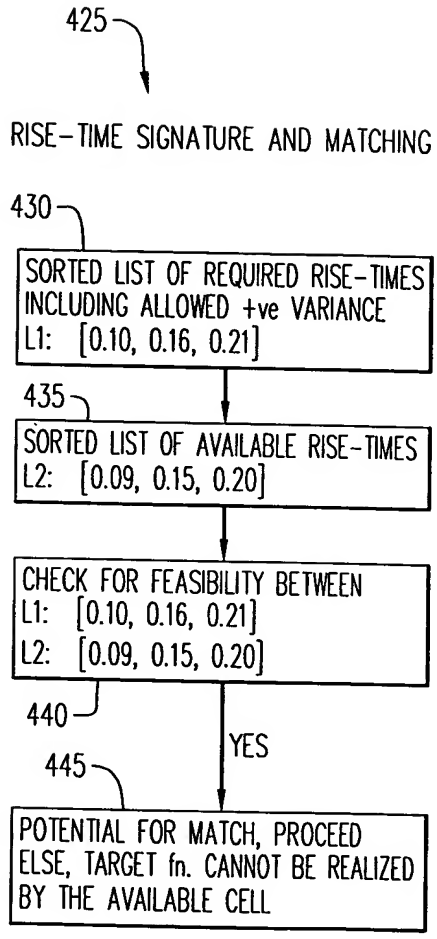


FIG. 4a

REPLACEMENT SHEET

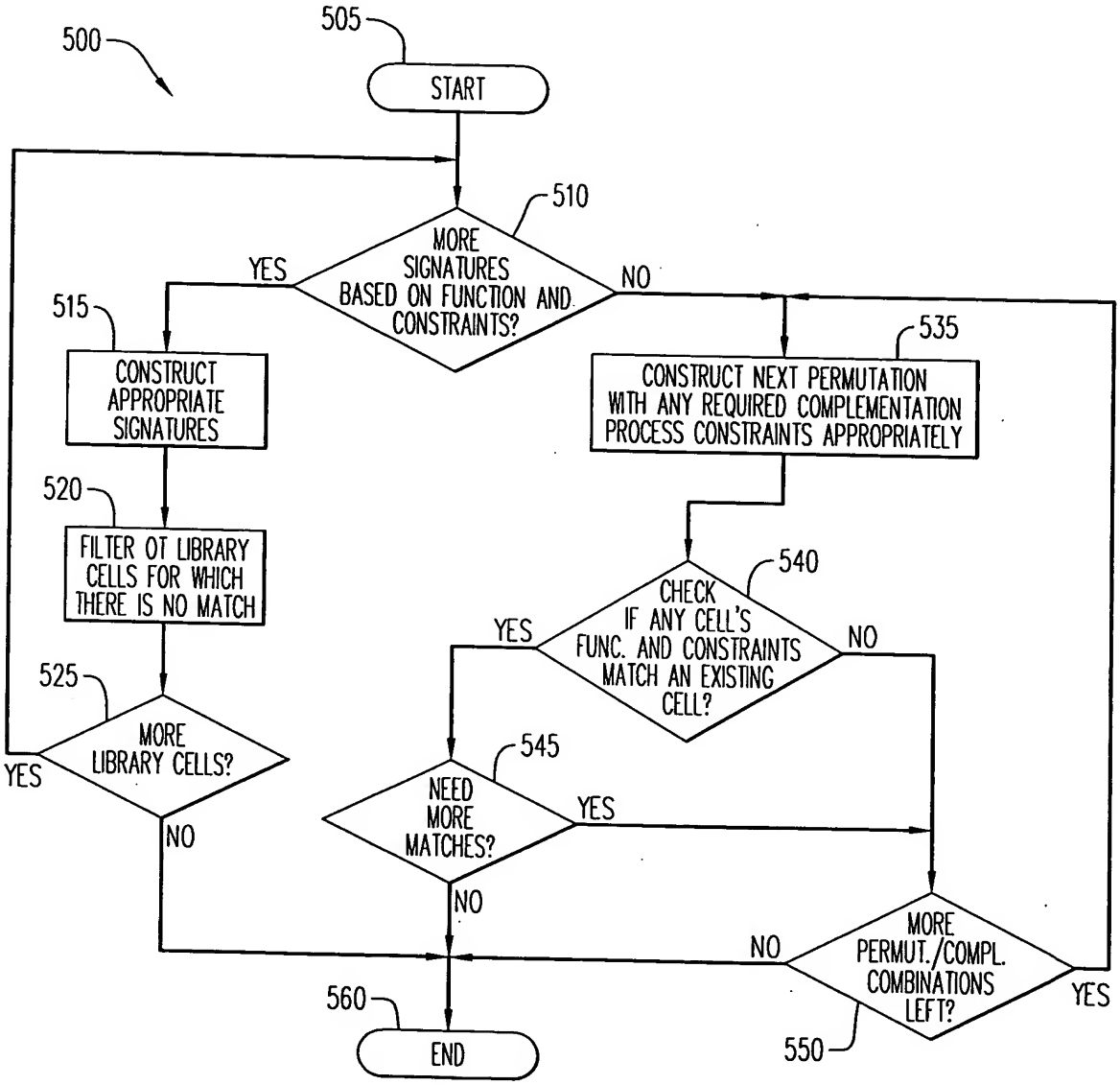
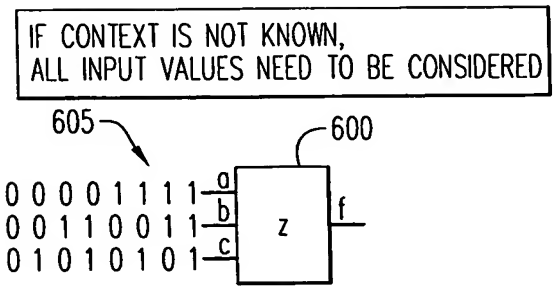


FIG. 5

REPLACEMENT SHEET



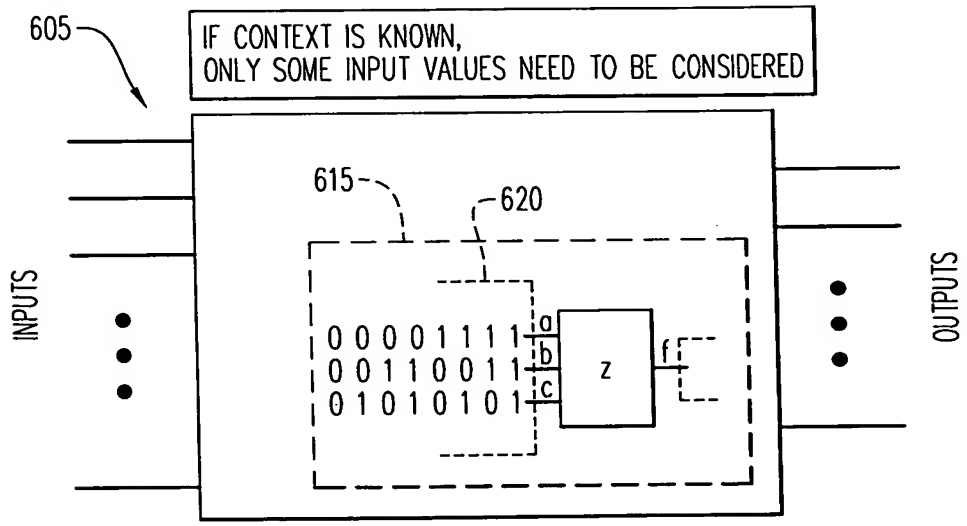
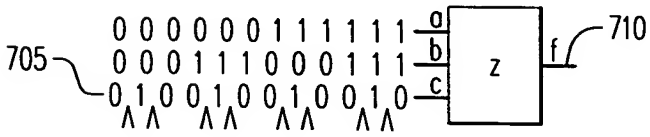


FIG. 6

REPLACEMENT SHEET

IF CONTEXT IS NOT KNOWN,
TO CHARACTERIZE TIMING ON c->f
ALL POSSIBLE 0->1 AND 1->0 TRANSITIONS
ON C NEED TO BE CONSIDERED



IF CONTEXT IS KNOWN,
TO CHARACTERIZE TIMING ON c->f
ONLY SOME 0->1 AND 1->0 TRANSITIONS
ON C NEED TO BE CONSIDERED
(CONTEXT ELIMINATES OTHER TRANSITIONS)

- CHARACTERIZATION IS MORE ACCURATE
- CHARACTERIZATION NEEDS LESSER RESOURCES

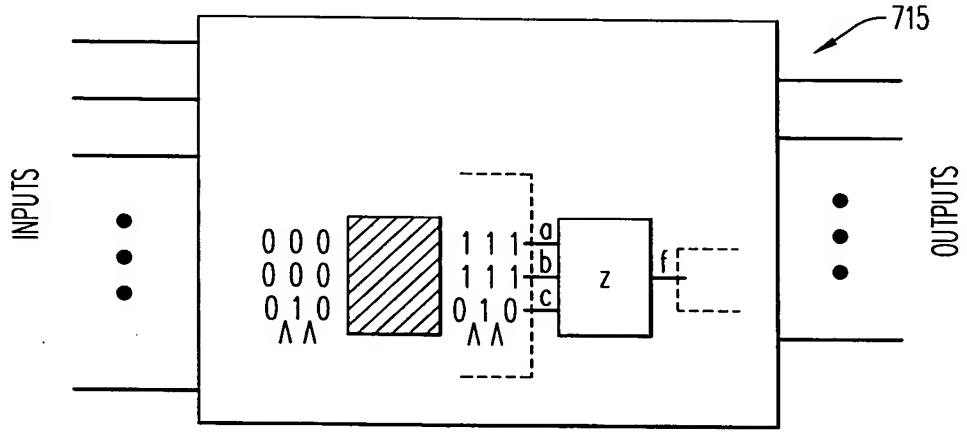
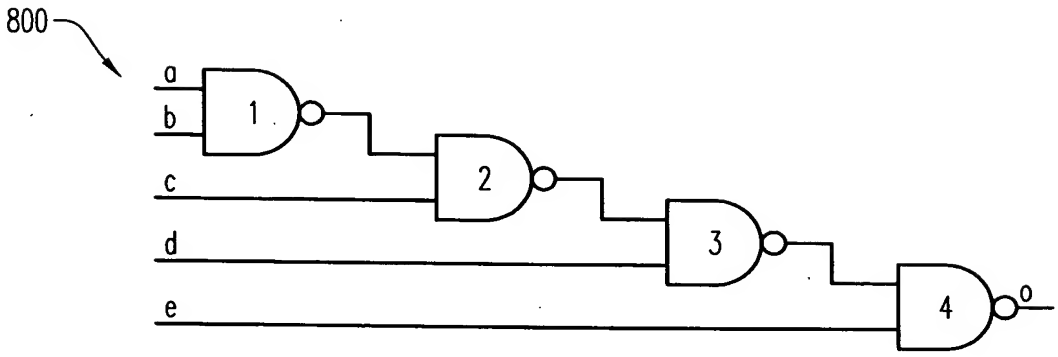


FIG. 7

REPLACEMENT SHEET



805

WORST PROPAGATION DELAY THROUGH THE DESIGN

DRIVE STRENGTHS AT STAGE	GATE-LEVEL TIMING (STA)	TRANSISTOR-LEVEL TIMING (SPICE)
1 2 3 4	(ns)	(ns)
0 0 0 0	0.40	0.186
1 1 1 1	0.22	0.166
2 2 2 2	0.15	0.157
4 4 4 4	0.61	0.581
0 1 2 4	0.41	0.332

FIG. 8

REPLACEMENT SHEET

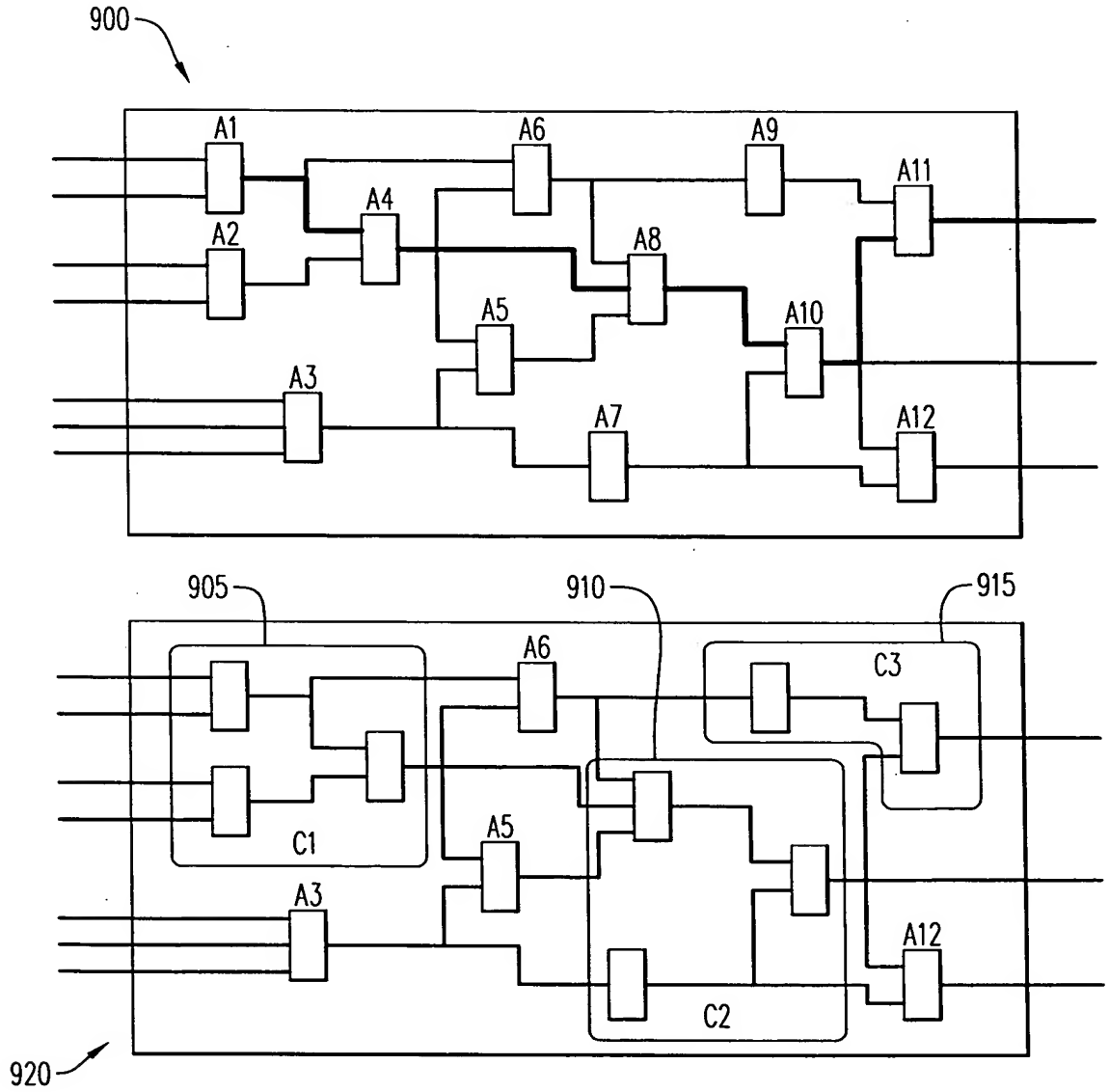


FIG. 9